K18U 2201

Reg. No. : .....

Name : .....

I Semester B.Sc. Degree (CBCSS-Reg./Supple./Improv.)
Examination, November 2018
COMPLEMENTARY COURSE IN STATISTICS FOR
MATHS/COMP. SCI./ELE CORE
IC01STA – Basic Statistics
(2014 Admn. Onwards)

Time : 3 Hours Max. Marks : 40

Instruction : *Use of calculators and Statistical tables are* ***permitted****.*

PART – A
(Short Answer)

Answer **all** the **6** questions (**6** questions × **1** mark **each** = **6** marks).

1. State any 2 desirable properties of a good average.
2. If the coefficient of variation of a distribution is 50 and the variance is 400. What will be the value of Arithmetic mean ?
3. Give 2 regression lines $3x - 4y + 8 = 0$ and $4x - 3y = 1$. Find means of x and y.
4. Given $Q_3 = 65.46$, $Q_1 = 59.46$, Median = 62.50, calculate Bowley's coefficient of skewness.
5. What is the method of least squares ?
6. What are the components of time series ?

PART – B
(Short Essay)

Answer **any 6** questions (**6** questions × **2** marks = **12** marks).

7. Explain stratified random sampling with example.
8. What are the advantages of sampling over census ?

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9. For a distribution Bowley's coefficient of skewness is –0.36, Q_1 = 8.6 and Median = 12.3. What is the quartile coefficient of dispersion ?

10. Derive an expression for the relation between row moment and central moment.

11. Given $r_{12} = 0.9256$, $r_{13} = 0.8911$, $r_{23} = 0.9554$ find $R_{1.23}$ and $R_{13.2}$.

12. Find combined mean and combined S.D of the 2 groups given below :

Group	Size	AM	S.D
I	30	20	3
II	20	25	4

13. Show that G.M of a set of positive observation lies between AM and HM.

14. Explain Deciles and percentiles.

PART – C
(Essay)

Answer **any 4** questions (**4** questions × **3** marks = **12** marks).

15. Derive an expression for the rank correlation coefficient.

16. The first four row moments of a distribution are 1, 4, 10 and 46 respectively. Compute the first four central moments and beta constants.

17. Calculate correlation coefficient.

x :	2	4	5	6	8	11
y :	18	12	10	8	7	5

18. Prove that the standard deviation of a distribution is invariant under changes of origin and scale.

19. Explain relative measures of dispersion.

20. Explain Kurtosis and how is it measured ?

PART – D
(Long Essay)

Answer **any 2** questions (**2** questions × **5** marks = **10** marks).

21. Fit an exponential trend to the following time series.

Year :	2000	2001	2002	2003	2004	2005
Value :	2	3	4	6	9	13

22. Define Index Number. Calculate (1) Laspeyre's (2) Paasche's and (3) Fisher's Index Number.

Year	Price		Quantity	
	Base Year	Current Year	Base Year	Current Year
A	6	10	50	50
B	2	2	100	120
C	4	6	60	60
D	10	12	30	25

23. Define correlation. Also explain different types of correlation and different methods of measuring correlation.

24. Fit a parabola to the following data :

x :	1	2	3	4	5	6	7	8	9
y :	2	6	7	8	10	11	11	10	9

Estimate y when x = 4.5.